

## CLAIMS

What is claimed is:

- 1 1. A method of providing digital subscriber line service comprising the steps  
2 of:  
3 providing digital subscriber line service for a first subscriber via a cross-  
4 connect switch connected to a digital subscriber line access multiplexer  
5 connected to a digital telecommunications network, the cross connect switch  
6 supplying a connection between data processing equipment of the first subscriber  
7 and the digital subscriber line access multiplexer, the cross-connect switch  
8 implemented between a central office and a subscriber location;  
9 receiving, at a network management system connected to the cross  
10 connect switch, an indication that the first subscriber has terminated service;  
11 in response to receiving the indication at the network management system,  
12 transmitting a command to the cross connect switch to switch out the connection  
13 of the data processing equipment of first subscriber to the digital access  
14 multiplexer; and  
15 in response to receiving the command at the cross-connect switch,  
16 switching out the connection of the data processing equipment of first subscriber  
17 to the digital access multiplexer.

1 2. The method of claim 1, wherein the cross-connect switch is implemented  
2 as a pole mounted facility.

1 3. The method of claim 1, wherein the cross-connect switch is implemented  
2 as a curb-side facility.

1 4. The method of claim 1, further comprising the step of:  
2 replacing a patch panel with the cross-connect switch.

1 5. The method of claim 4, wherein the step of replacing the patch panel with  
2 the cross-connect switch comprises the step of:  
3 pre-connecting the cross-connect switch initially to match connections  
4 within the patch panel.

1 6. The method of claim 5, wherein the step of pre-connecting the cross-  
2 connect switch initially to match connections within the patch panel comprises  
3 the steps of:  
4 accessing a service database at the central office to obtain a configuration  
5 of the patch panel for replacement; and

6 commanding the cross-connect switch to reproduce the connections of the  
7 patch panel as defined in the service database.

1 7. The method of claim 6, wherein the step of replacing the patch panel with  
2 the cross-connect switch further comprises the steps of:

3 wiring the cross-connect switch in parallel with the patch panel;  
4 verifying the connections using test routines; and  
5 disconnecting the patch panel.

1 8. The method of claim 1, wherein the connection between data processing  
2 equipment of the first subscriber and the digital subscriber line access  
3 multiplexer comprises a central office MDF connected to the data processing  
4 equipment of the first subscriber, a collocation arrangement demarcation  
5 connected to the cross-connect switch and a patch line connecting the central  
6 office MDF to the collocation arrangement demarcation.

1 9. The method of claim 8, wherein the connection between the data  
2 processing equipment of the first subscriber and the central office MDF is  
3 unshared.

1 10. The method of claim 9, wherein the cross-connect switch is connected to  
2 a port of the digital subscriber line access multiplexer.

1 11. The method of claim 10, wherein the step of switching out the connection  
2 of the data processing equipment of first subscriber to the digital access  
3 multiplexer frees up the port of the digital subscriber line access multiplexer.

1 12. The method of claim 1, wherein the method further comprises the steps  
2 of:

3 receiving, at a network management system connected to the cross  
4 connect switch, an indication that a second subscriber has initiated service;

5 in response to receiving the indication at the network management system,  
6 transmitting a command to the cross connect switch to connect data processing  
7 equipment of second subscriber to the digital access multiplexer; and

8 in response to receiving the command at the cross-connect switch,  
9 connecting the data processing equipment of the second subscriber to the digital  
10 access multiplexer.

1 13. The method of claim 12, wherein the cross-connect switch is connected to  
2 a port of the digital subscriber line access multiplexer and the step of switching

3 out the connection of the data processing equipment of the first subscriber to the  
4 digital access multiplexer frees up the port of the digital subscriber line access  
5 multiplexer

1 14. The method of claim 13, wherein the step of connecting the data  
2 processing equipment of the second subscriber to the digital access multiplexer  
3 comprises the step of:

4 connecting the data processing equipment of the second subscriber to the  
5 port of the digital subscriber line access multiplexer that was freed up by the step  
6 of switching out the connection of the data processing equipment of first  
7 subscriber to the digital access multiplexer.

1 15. The method of claim 14, wherein the connection between data processing  
2 equipment of the first subscriber and the digital subscriber line access  
3 multiplexer comprises a central office MDF connected to the data processing  
4 equipment of the second subscriber, a collocation arrangement demarcation  
5 connected to the cross-connect switch and a patch line connecting the central  
6 office MDF to the collocation arrangement demarcation.

1 16. The method of claim 15, wherein the connection between the data  
2 processing equipment of the first subscriber and the central office MDF is  
3 unshared.

1 17. The method of claim 16, wherein the connection between data processing  
2 equipment of the second subscriber and the digital subscriber line access  
3 multiplexer comprises a central office MDF connected to the data processing  
4 equipment of the second subscriber, a collocation arrangement demarcation  
5 connected to the cross-connect switch and a patch line connecting the central  
6 office MDF to the collocation arrangement demarcation.

1 18. The method of claim 17, wherein the connection between the data  
2 processing equipment of the second subscriber and the central office MDF is  
3 unshared.

1 19. A system for providing digital subscriber line service comprising:  
2 means for providing digital subscriber line service for a first subscriber  
3 via a cross-connect switch connected to a digital subscriber line access  
4 multiplexer connected to a digital telecommunications network, the cross connect  
5 switch supplying a connection between data processing equipment of the first

6 subscriber and the digital subscriber line access multiplexer, the cross-connect  
7 switch implemented between a central office and a subscriber location;

8 means for receiving, at a network management system connected to the  
9 cross connect switch, an indication that the first subscriber has terminated  
10 service;

11 means for, in response to receiving the indication at the network  
12 management system, transmitting a command to the cross connect switch to  
13 switch out the connection of the data processing equipment of first subscriber to  
14 the digital access multiplexer; and

15 means for, in response to receiving the command at the cross-connect  
16 switch, switching out the connection of the data processing equipment of first  
17 subscriber to the digital access multiplexer.

1 20. The system of claim 19, wherein the cross-connect switch is implemented  
2 as a pole mounted facility.

1 21. The system of claim 19, wherein the cross-connect switch is implemented  
2 as a curb-side facility.

1 22. The system of claim 19, wherein the cross-connect switch replaces a  
2 patch panel.

1 23. The system of claim 22, wherein the cross-connect switch is initially pre-  
2 connected to match connections within the patch panel.

1 24. The system of claim 23, wherein the cross-connect switch is initially pre-  
2 connected to match connections within the patch panel by accessing a service  
3 database at the central office to obtain a configuration of the patch panel for  
4 replacement, and commanding the cross-connect switch to reproduce the  
5 connections of the patch panel as defined in the service database.

1 25. The system of claim 24, wherein the cross-connect switch replaces a  
2 patch panel by wiring the cross-connect switch in parallel with the patch panel,  
3 verifying the connections using test routines, and disconnecting the patch panel.

1 26. The system of claim 19, wherein the connection between data processing  
2 equipment of the first subscriber and the digital subscriber line access  
3 multiplexer comprises a central office MDF connected to the data processing  
4 equipment of the first subscriber, a collocation arrangement demarcation



5 connected to the cross-connect switch and a patch line connecting the central  
6 office MDF to the collocation arrangement demarcation.

1 27. The system of claim 26, wherein the connection between the data  
2 processing equipment of the first subscriber and the central office MDF is  
3 unshared.

1 28. The system of claim 27, wherein the cross-connect switch is connected to  
2 a port of the digital subscriber line access multiplexer.

1 29. The system of claim 28, wherein the means for switching out the  
2 connection of the data processing equipment of first subscriber to the digital  
3 access multiplexer frees up the port of the digital subscriber line access  
4 multiplexer.

1 30. The system of claim 19, wherein the system further comprises:  
2 means for receiving, at a network management system connected to the  
3 cross connect switch, an indication that a second subscriber has initiated service;  
4 means for, in response to receiving the indication at the network  
5 management system, transmitting a command to the cross connect switch to

6 connect data processing equipment of the second subscriber to the digital access  
7 multiplexer; and  
8 means for, in response to receiving the command at the cross-connect  
9 switch, connecting the data processing equipment of the second subscriber to the  
10 digital access multiplexer.

1 31. The system of claim 30, wherein the cross-connect switch is connected to  
2 a port of the digital subscriber line access multiplexer and the step of switching  
3 out the connection of the data processing equipment of first subscriber to the  
4 digital access multiplexer frees up the port of the digital subscriber line access  
5 multiplexer

1 32. The system of claim 31, wherein the step of connecting the data  
2 processing equipment of second subscriber to the digital access multiplexer  
3 comprises the step of:

4 connecting the data processing equipment of the second subscriber to the  
5 port of the digital subscriber line access multiplexer that was freed up by the step  
6 of switching out the connection of the data processing equipment of first  
7 subscriber to the digital access multiplexer.

1 33. The system of claim 32, wherein the connection between data processing  
2 equipment of the first subscriber and the digital subscriber line access  
3 multiplexer comprises a central office MDF connected to the data processing  
4 equipment of the second subscriber, a collocation arrangement demarcation  
5 connected to the cross-connect switch and a patch line connecting the central  
6 office MDF to the collocation arrangement demarcation.

1 34. The system of claim 33, wherein the connection between the data  
2 processing equipment of the first subscriber and the central office MDF is  
3 unshared.

1 35. The system of claim 34, wherein the connection between data processing  
2 equipment of the second subscriber and the digital subscriber line access  
3 multiplexer comprises a central office MDF connected to the data processing  
4 equipment of the second subscriber, a collocation arrangement demarcation  
5 connected to the cross-connect switch and a patch line connecting the central  
6 office MDF to the collocation arrangement demarcation.

1 36. The system of claim 35, wherein the connection between the data  
2 processing equipment of the second subscriber and the central office MDF is  
3 unshared.

1 37. A system for providing digital subscriber line service comprising:  
2 a cross-connect switch connected to a digital subscriber line access  
3 multiplexer connected to a digital telecommunications network, the cross connect  
4 switch operable to supply a connection between data processing equipment of a  
5 first subscriber and the digital subscriber line access multiplexer, the cross-  
6 connect switch implemented between a central office and a subscriber location;  
7 a network management system connected to the cross connect switch  
8 operable to receive an indication that the first subscriber has terminated service  
9 and operable to, in response to receiving the indication, transmit a command to  
10 the cross connect switch to switch out the connection of the data processing  
11 equipment of first subscriber to the digital access multiplexer; and  
12 wherein the cross-connect switch is further operable to, in response to  
13 receiving the command from the network management system, switch out the  
14 connection of the data processing equipment of first subscriber to the digital  
15 access multiplexer.

1 38. The system of claim 37, wherein the cross-connect switch is implemented  
2 as a pole mounted facility.

1 39. The system of claim 37, wherein the cross-connect switch is implemented  
2 as a curb-side facility.

1 40. The system of claim 37, wherein the cross-connect switch replaces a  
2 patch panel.

1 41. The system of claim 40, wherein the cross-connect switch is initially pre-  
2 connected to match connections within the patch panel.

1 42. The system of claim 41, wherein the cross-connect switch is initially pre-  
2 connected to match connections within the patch panel by accessing a service  
3 database at the central office to obtain a configuration of the patch panel for  
4 replacement, and commanding the cross-connect switch to reproduce the  
5 connections of the patch panel as defined in the service database.

1 43. The system of claim 42, wherein the cross-connect switch replaces a  
2 patch panel by wiring the cross-connect switch in parallel with the patch panel,  
3 verifying the connections using test routines, and disconnecting the patch panel.

1 44. The system of claim 37, wherein the connection between data processing  
2 equipment of the first subscriber and the digital subscriber line access  
3 multiplexer comprises a central office MDF connected to the data processing  
4 equipment of the first subscriber, a collocation arrangement demarcation  
5 connected to the cross-connect switch and a patch line connecting the central  
6 office MDF to the collocation arrangement demarcation.

1 45. The system of claim 44, wherein the connection between the data  
2 processing equipment of the first subscriber and the central office MDF is  
3 unshared.

1 46. The system of claim 45, wherein the cross-connect switch is connected to  
2 a port of the digital subscriber line access multiplexer.

1 47. The system of claim 46, wherein the means for switching out the  
2 connection of the data processing equipment of first subscriber to the digital

3 access multiplexer frees up the port of the digital subscriber line access  
4 multiplexer.

1 48. The system of claim 37, wherein the network management system is  
2 further operable to receive an indication that a second subscriber has initiated  
3 service and is further operable to, in response, transmit a command to the cross  
4 connect switch to connect data processing equipment of second subscriber to the  
5 digital access multiplexer; and the cross-connect switch is further operable to, in  
6 response to receiving the command, connect the data processing equipment of  
7 the second subscriber to the digital access multiplexer.

1 49. The system of claim 48, wherein the cross-connect switch is connected to  
2 a port of the digital subscriber line access multiplexer and the step of switching  
3 out the connection of the data processing equipment of first subscriber to the  
4 digital access multiplexer frees up the port of the digital subscriber line access  
5 multiplexer

1 50. The system of claim 49, wherein the cross-connect switch is further  
2 operable to connect the data processing equipment of the second subscriber to the  
3 port of the digital subscriber line access multiplexer that was freed up by

4 switching out the connection of the data processing equipment of first subscriber  
5 to the digital access multiplexer.

1 51. The system of claim 50, wherein the connection between data processing  
2 equipment of the first subscriber and the digital subscriber line access  
3 multiplexer comprises a central office MDF connected to the data processing  
4 equipment of the second subscriber, a collocation arrangement demarcation  
5 connected to the cross-connect switch and a patch line connecting the central  
6 office MDF to the collocation arrangement demarcation.

1 52. The system of claim 51, wherein the connection between the data  
2 processing equipment of the first subscriber and the central office MDF is  
3 unshared.

1 53. The system of claim 52, wherein the connection between data processing  
2 equipment of the second subscriber and the digital subscriber line access  
3 multiplexer comprises a central office MDF connected to the data processing  
4 equipment of the second subscriber, a collocation arrangement demarcation  
5 connected to the cross-connect switch and a patch line connecting the central  
6 office MDF to the collocation arrangement demarcation.



- 1 54. The system of claim 53, wherein the connection between the data  
2 processing equipment of the second subscriber and the central office MDF is  
3 unshared.